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A new Mentalization-Based Therapy for Borderline Personality Disorder



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Dr Jennifer S Perrin

Doctorate in Clinical Psychology

2015

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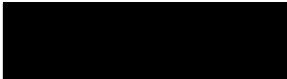
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DEDICATION/ACKNOWLEDGEMENTS

I would like to dedicate this work to Professor Ian C Reid who was a mentor, friend and great scientific mind. Without him I would not be where I am today, even if we did debate where that place should be.

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THESIS ABSTRACT

Introduction: Borderline Personality Disorder (BPD) is characterised by deficits in affect and impulse regulation, along with interpersonal difficulties (Lieb et al., 2004). It is thought to develop through a complex relationship between adverse childhood events, such as childhood abuse and genetics. A recent developmental model of BPD and one that is gaining popularity focuses on mentalization. Following their exposition of the mentalizing model of BPD, Bateman and Fonagy developed the Mentalization Based Treatment (MBT) intervention for BPD (Bateman & Fonagy 2006). This intervention includes both group and individual therapy with the focus on the patient's relationship with the therapist and other members of the group. Promising evidence that MBT interventions are effective for treating symptoms of BPD is beginning to emerge.

Methods: First a systematic review examining the prevalence of childhood abuse in BPD patients was conducted. Second, an empirical study of the efficacy of a group-only adaptation of the MBT intervention for BPD, delivered in a routine health service setting. Finally, planned exploratory analyses were conducted in order to ascertain what factors might predict group completion.

Results: The results of the systematic review suggested that that emotional abuse (mean prevalence 63%) and emotional neglect (mean prevalence 63.1%) are the most common forms of abuse reported by this population followed by physical neglect (mean prevalence 40.89%) , sexual abuse (mean prevalence 36.9%) and physical abuse (mean prevalence 32.49%). The results of the second study revealed that the HUB is an acceptable treatment to participants, with indicators of treatment efficacy in relation to reducing overall psychiatric symptoms along with specific symptoms including interpersonal sensitivities, depression, phobic anxiety and paranoid ideation. Finally, exploratory analyses suggested that patients who were older and with less histrionic symptoms (as defined by the Personality Disorder Questionnaire-4) were more likely to complete the HUB.

Conclusions: These findings demonstrate that a group-only MBT intervention displays promising effectiveness in treating core symptoms of BPD and is acceptable to patients. Further it suggests that

group-only MBT interventions are worth continued investigation both into their efficacies and the potential efficiencies associated a group-based intervention.

PAPER 1: SYSTEMATIC REVIEW

TITLE: A systematic review of the prevalence of childhood abuse in individuals diagnosed with Borderline Personality Disorder

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**Written in accordance with author guidelines for publishing in the Journal of Psychiatric Research (Appendix A).

ABSTRACT

Borderline Personality Disorder (BPD) is characterised by deficits in affect and impulse regulation, along with interpersonal difficulties (Lieb et al., 2004). It is thought to develop through a complex relationship between adverse childhood events, such as childhood abuse and genetics. While research has examined the prevalence of childhood abuse in patients with BPD there have been no recent systematic reviews of meta-analyses examining the prevalence of different forms of childhood abuse. The current paper sought to systematically review the literature in order to examine the prevalence of childhood abuse in individuals with BPD. The results of the review suggest that emotional abuse (mean prevalence 63%) and emotional neglect (mean prevalence 63.1%) are the most common forms of abuse reported by this population followed by physical neglect (mean prevalence 40.89%) , sexual abuse (mean prevalence 36.9%) and physical abuse (mean prevalence 32.49%). The results also highlighted that while the quality of the papers was generally of a high standard; measures of abuse varied greatly and may have a large impact on reported prevalence rates.

KEYWORDS

Borderline Personality Disorder, Childhood Abuse, Sexual Abuse, Emotional Abuse

INTRODUCTION

Borderline Personality Disorder (BPD) is considered to be a serious mental health difficulty that can be hard to treat and manage (Zanarini et al., 2005). This disorder is characterised by unstable impulse and affect regulation, as well as unstable self-image and interpersonal relationships (Lieb et al., 2004). Individuals with BPD are more likely to experience interpersonal difficulties, violence at work, sexual abuse, homelessness and problems with the police (Coid et al., 2009). Epidemiological research has estimated that the prevalence of BPD can range from 0.7% in Norway; (Torgersen et al., 2001) to 1.3% in the United Kingdom (Coid et al., 2009) and 1.8% reported in the United States of America (Swartz et al., 1990). Patients who are diagnosed with BPD often also meet the criteria for other disorders, such as major depression, substance misuse, and anxiety disorders (Oldham et al., 1995; Zanarini et al., 1998; Zimmerman & Mattia, 1999; McGlashan et al., 2000).

Childhood trauma has been shown to be quite prevalent among the general population. A UK survey found the prevalence of childhood sexual abuse to be 10% (May-Chahal & Cawson, 2005). A more recent survey in the UK found that 17% of women and 8% of men reported experiencing any form of sexual abuse before the age of 16 (Bebbington et al., 2011). These figures are important as links have been found between experiencing childhood trauma and development of mental health difficulties. For example, Cutajar and colleagues (2010) found that exposure to childhood abuse increased the risk for psychosis, affective disorders, anxiety, substance misuse and personality disorders. Beddington and colleagues (2004) also found an association between childhood sexual abuse and psychotic symptoms in a UK-based population study.

Why individuals develop BPD is still not clearly understood, but it is thought to involve a complex relationship between genetics, adverse childhood events, and interpersonal difficulties. One of the most prominent models of BPD development is Linehan's biosocial model (Linehan 1993). This model proposes that BPD is the result of a combination of an individual's biological predisposition to emotion regulation/interpersonal difficulties and an invalidating social environment during childhood. More recent models have carried on with this theme; Hughes and colleagues (2012) proposes that the

development of BPD may be due to a child's lack of social proximity to or responsiveness from relevant caregivers, which leads to a disruption in an individual's ability to effectively regulate their emotions. In parallel, developmental theories focus on early attachment and early childhood experiences (Bateman & Fonagy, 2006). These theories suggest that the attachment system is disorganised in BPD resulting in the disorganisation the individual's self-structure (Bateman & Fonagy, 2006).

Common to the above theories is the positioning of childhood adversity as integral to the development of BPD. Research over the past few decades has begun to elucidate this relationship by examining whether there are certain types of adversity which have a higher link with BPD. For example, Briere and Elliot (2003) found that childhood emotional abuse was the best predictor of a BPD diagnosis in men, while sexual and physical abuse were not significant predictors. This result was replicated by Bornovalova and colleagues (2006). Watson *et al.* (2006) also found that emotional abuse and neglect were correlated with dissociative symptoms in individuals with BPD, while no such relationship was found with other forms of abuse.

Difficulties with emotion regulation are a core symptom of BPD and researchers have examined the relationship with childhood abuse and emotional regulation. Multiple studies have found that children with a history of abuse are more likely to have difficulties with emotion regulation than children who have not experienced abuse (Shields & Cicchetti 1998; Shipman et al., 2000; Shipman et al., 2005). Further, childhood abuse has been found to correlate with higher levels of emotional non-acceptance (Gratz et al., 2007) and lower levels of emotional understanding (Shipman et al., 2000).

Aims of the review

While there are many individual studies spanning the decades which have examined the prevalence of childhood abuse experienced by individuals with BPD (Huang et al., 2012; Battle et al., 2004; Ogata et al., 1990; Oldham et al., 1996), there are no recent systematic reviews or meta-analyses consolidating the knowledge gained from these individual studies.

The aim of this review was to systematically identify, synthesise and critically evaluate the literature on the prevalence of childhood abuse amongst individuals with BPD. The main research question was would there be differences in reported prevalences of different forms of abuse in individuals diagnosed with BPD. Secondary research questions considered a) consideration of sources of methodological bias in the literature that could impact on prevalence figures and b) identification of potential covariates that could also impact on prevalence rates.

MATERIALS AND METHODS

Inclusion and exclusion criteria

The inclusion criteria for this review include (i) measure of childhood emotional or sexual abuse, (ii) participants diagnosed with Borderline Personality Disorder, (iii) were published between 1980 (when BPD entered the Diagnostic and Statistical Manual of Mental Disorders; DSM) and December 2014, (iv) written in English, (v) large-scale (more than 20 participants) studies.

The exclusion criteria for this review were (i) non-clinical studies, (ii) single case studies or case series, (iii) no measure of childhood sexual or emotional abuse, (iv) qualitative data, (v) conference abstracts, (vi) book chapters, (vii) unpublished studies or dissertation abstracts, and (viii) papers not published in English.

Search Strategy

Computerised databases were searched to find relevant articles, which investigated the prevalence of childhood sexual or emotional abuse in individuals with Borderline Personality Disorder. In order to conduct this search the following search terms were used in the subject headings: “*Borderline Personality Disorder*” or “*Borderline Traits*” or “*Borderline Personality*”, combined with “*childhood trauma*” or “*childhood abuse*” or “*sexual abuse*” or “*emotional abuse*”. The three databases used in this search were PsychInfo (1980 to December 2014), Medline (1980 to December 2014) and EMBASE (1980 to December 2014). 1980 was chosen as a start date as this was the year that BPD

entered the DSM-III. Neglect has only recently become a subject of interest in this area and a preliminary search did not produce any papers of interest, therefore neglect was not used as an official search term in this review. It is likely however, that in the future neglect will be a relevant term for this type of review.

Once the searches were complete duplicates were removed before titles and abstracts were reviewed. Articles that did not meet the inclusion criteria at this stage were discarded and the full text of articles that were potentially eligible was obtained.

Quality Criteria

All of the selected articles were then assessed to evaluate their quality and potential for bias. These criteria were based on the STROBE statement for cohort/cross sectional studies (von Elm et al., 2008) and assessed a number of different criteria from how childhood abuse was measured to sample size considerations. Each criterion was rated as high, moderate or low as suggested by Khan and colleagues (2003). In brief, the following criteria were assessed: childhood abuse measurement, BPD measurement, study design, setting, variables, bias, and sample size consideration. The two which were considered to be the most important to the review were how childhood abuse and BPD were measured. The criteria for these two factors were:

Childhood abuse: (i) High - Use of the Childhood Trauma Questionnaire (CTQ); (ii) Moderate- Use of another validated questionnaire or interview; (iii) Low - Use of non-validated questionnaires or simply asking if it had occurred during interview.

BPD: (i) High- use of the Structured Clinical Interview Diagnostic –II (SCID-II); (ii) Moderate - use of another validated questionnaire; (iii) Low - use of only clinical impression.

For Childhood Abuse, the CTQ was assigned the highest rating as the instructions and test-items are largely phrased in terms of concrete, objective events and behaviours. Further, terms such as trauma, abuse and neglect are avoided due to their subjective, evaluative and stigmatizing qualities, which can

arouse defensiveness (Bernstein et al., 1994). This is an advantage of this approach avoiding these terms is hypothesised to maximise the accuracy of recall (Brewin et al., 1993). For BPD diagnosis the SCID-II was assigned the highest rating as this interview has become the gold standard in research for confirming diagnoses of personality disorder. Further, research has shown that this interview has good internal consistency and inter-rater reliability (Maffei et al., 1997; Lobbestael et al., 2010).

The other criteria were rated as follows:

Study Design: (i) High – clearly described in detail early in the paper, making it straightforward to replicate the study. (ii) Moderate – Lacking some clarity or details making it necessary to do further reading in order to replicate the study. (iii) Low – Not well described or insufficient detail that it could not be replicated.

Setting: (i) High – Setting, locations and relevant dates including period of recruitment are all clearly detailed. (ii) Moderate – Setting and locations documented but dates not clearly indicated. (iii) Low – Settings, locations and dates are not clear or not reported.

Variables: (i) High – Variables are all clearly defined (including outcomes, predictors and potential confounders) and diagnostic criteria are clearly stated. (ii) Moderate- An attempt at defining variables but some detail is missing. (iii) Low – No attempt at defining variables.

Bias: (i) High – Potential sources of bias are discussed and efforts to reduce bias are clearly described. (ii) Moderate – An attempt is made at discussing sources of bias but no efforts are made to reduce it. (iii) Low – No discussion of potential bias.

Study Size: (i) High – Study size is based on a well described power calculation. (ii) Moderate- An attempt is made to describe how the study size was determined. (iii) Low – No rationale for study size is reported.

All articles were rated using an extraction sheet (Appendix B) which included the above variables by two independent reviewers. Any disagreements were resolved by discussions between the two

reviewers. If any disagreements could not be resolved then an adjudicator was consulted to make the final decision.

RESULTS

Literature Search

The search and exclusion process is summarised in Figure 1. We identified 97 potential papers for review. Of these, 74 were excluded based on the inclusion/exclusion criteria. The reasons for exclusion are as follows: abuse prevalence not reported ($n=36$), no measure of Borderline Personality Disorder ($n=5$), abuse type not specified ($n=1$), no abuse measure defined ($n=4$), used only BPD patients who had auditory hallucinations ($n=1$), Borderline Personality Disorder not reported separately from other personality disorders ($n=6$), review of the literature ($n=1$), less than 20 participants ($n=3$), same sample reported in multiple papers ($n=6$), non-clinical sample ($n=1$), only one gender in sample ($n=9$). Based on this search strategy 23 papers met the criteria for review and are included in this systematic review.

Single gender studies were excluded for two main reasons. First, it is possible that gender differences may exist in the development of BPD. Therefore, including studies with only one gender could skew the results by either under-or over-playing the importance of childhood trauma in the development of this disorder. Second, this review aimed to provide an initial general examination of the prevalence of different forms of abuse in individuals with BPD, therefore, both genders were included to attempt to make the sample as representative as possible. A table detailing these excluded studies can be found in Appendix C.

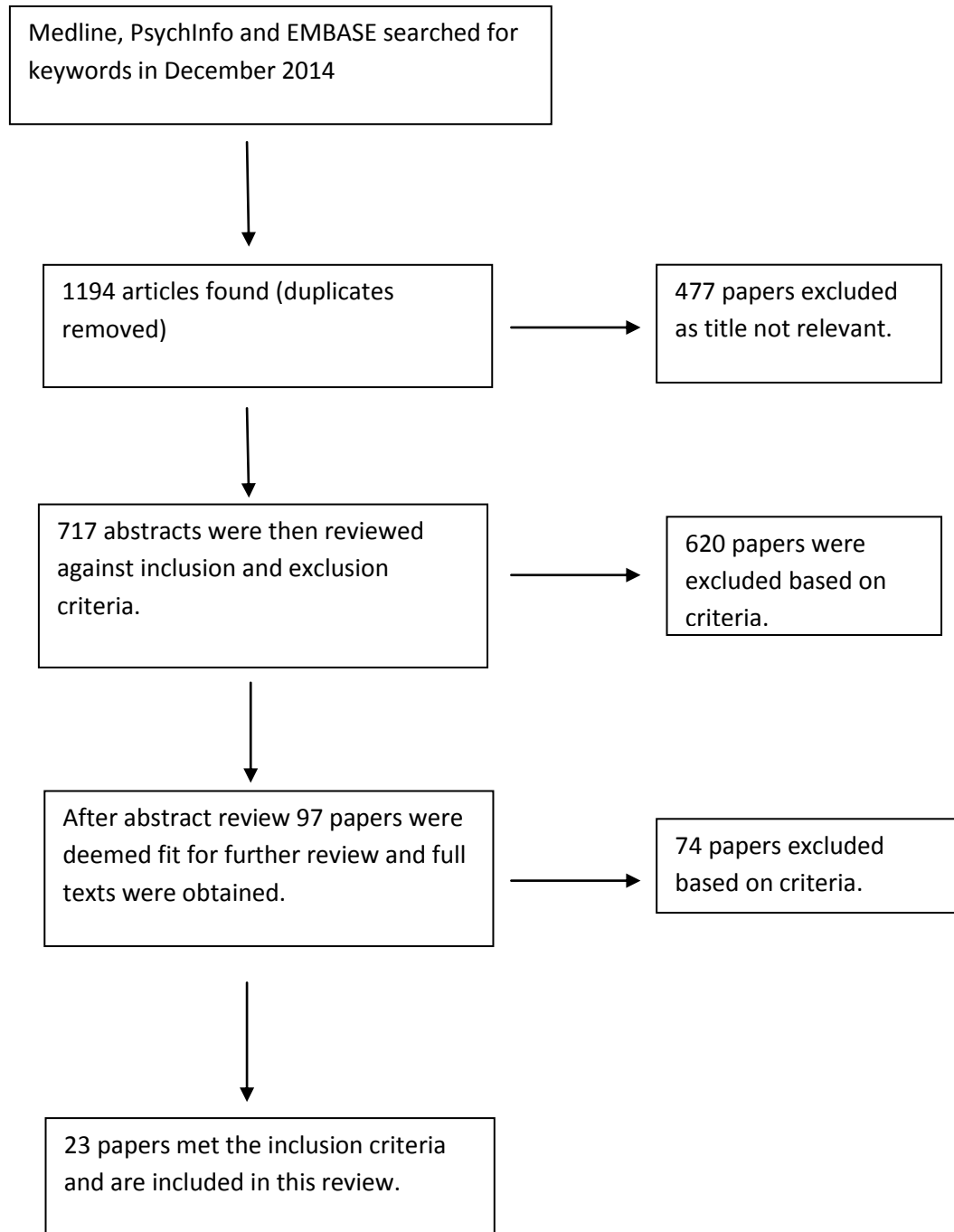


Figure 1: Flowchart of the article selection process (breakdown of exclusions in main text).

Included Studies

Table 1 includes a list of all the studies included in this review along with the summary characteristics of the study and reported abuse prevalence.

Study	Number of Participants	Source of Sample	Age (in years) Mean (SD)	Gender Male/Female	Country of Origin	BPD measure	Abuse Measure	Abuse Prevalence
Bandelow et al., 2005	59	Outpatients	Not reported	Not able to quantify*	Germany	German SCID-II	Authors own standardised questionnaire	SA non genital: 73.9% SA genital: 60.3%
Battle et al., 2004	214	Outpatients	Not reported	Not able to quantify*	USA	DIPV-IV	CEQ-R	Caretaker EA: 66% Caretaker VA: 65% Caretaker PA: 44% Caretaker SA: 18% Non-Caretaker SA: 39%
Brodsky et al., 1995	60	Inpatients	M 30.0 (7.2)	Not able to quantify*	USA	SCID-II	Sexual Experiences Questionnaire	SA: 40% PA: 15%
Carvalho Fernando et al., 2014	49	Outpatients	M 28.63 (8.99)	5/44	Germany	SCID-II	CTQ	Moderate to Severe EA: 57.1% PA: 30.6% SA: 32.7% EN: 63.3%, PN: 42.9%
Figuerola et al., 1997	47	Inpatients	M 28.4 (7.4)	9/38	USA	DIB	Family Experiences Interview	SA: 78.7%
Golier et al., 2003	72	Outpatients	M 36.2 (10.5)	Not able to quantify*	USA	Structured Interview for DSM-III R Personality R	Trauma History Questionnaire	PA: 52.8% SA: 29.2%
Huang et al., 2012	203	Outpatients	M 26.8 (7.41)	69/134	China	SCID-II & Unstructured Clinical Interview MSI-BPD	CECA-Q	PA: 46.8% SA: 22.2%
Johnston et al., 2009	30	Both inpatients and outpatients	M 40.0 (12.4)	3/27	UK	SCID-II	CTQ	Moderate to Severe EA: 70% PA: 43% SA: 63% EN: 57% PN: 53

Study	Number of Participants	Source of Sample	Age (in years) Mean (SD)	Gender Male/Female	County of Origin	BPD measure	Abuse Measure	Abuse Prevalence
Kingdon et al., 2010	33	Both inpatients and community based patients	M 32.9 (10.0)	3/30	UK	SCID-II	CTQ	Moderate to Severe EA: 94% PA: 52% SA: 67% EN: 90% PN: 57%
Links et al., 1988	88	Inpatients	M 28.3	13/75	Canada	DIB	Reisma-Street et al 1985	PA: 29.4% SA: 25.9%
Martin-Blanco et al., 2014	281	Recruited from specific BPD units	M 29.4 (7.0)	42/239	Spain	Spanish SCID-II & DIB-R	CTQ-SF	Moderate to Severe EA: 61.9% PA: 39% SA: 42.3% EN: 44.5% PN: 21.1%
Ogata et al., 1990	24	Inpatients	M 30.0 (9.0)	5/19	USA	DIB	Familial Experiences Interview	SA: 71% PA: 42% PN: 17%
Oldham et al., 1996	44	Inpatients	Not reported	Not able to quantify*	USA	PDQ-R	Patient History Questionnaire	SA: 29.5% PA: 61.4% VA: 29.5% Neglect: 45.5%
Soloff et al., 2008	151	Outpatients and community sample	M 28.3 (8.25)	36/115	USA	DIB & IPDE	Abuse History adapted from Dissociative Disorder Interview Schedule	SA: 42.4%
Soloff et al., 2002	61	Not reported	M 28.2 (8.8)	11/50	USA	DIB & IPDE	Abuse History adapted from Dissociative Disorder Interview	SA: 25.9% PA: 29.4%

Study	Number of Participants	Source of Sample	Age (in years) Mean (SD)	Gender Male/Female	Country of Origin	BPD measure	Abuse Measure	Abuse Prevalence
Wagner et al., 2009	159	Not reported	M 33.0 (9.5)	49/110	Germany	German SCID-II	Munich Composite International Diagnostic Interview (PTSD section)	SA: 38%
Watson et al., 2006	72	Patients treated by specific BPD treatment teams	M 32.6 (9.6)	34/105	Australia	PDQ	CTQ	Moderate to Severe EA: 71% PA: 39% SA: 43% EN: 71% PN: 43%
Wong et al., 2010	30	A and E and general ward patients	M 33.3 (11.2)	5/25	China	Chinese SCID-II	Asked during interview	SA: 30% PA: 33.3%
Zanarini et al., 2005	290	Inpatients	M 27.0 (6.3)	11/279	USA	DIB-R	Abuse History Interview	VA: 75.9% EA: 71.4% PA: 33.1% SA: 31.4%
Zanarini et al., 2000	358	Inpatients	M 27.6 (6.8)	Not able to quantify*	USA	DIB-R & DIPD-R	CEQ-R	EA: 33% VA: 34.4% PA: 24% SA: 4.5%
Zanarini et al., 1989	50	Outpatients	29.2 (6.4)	17/33	USA	DIB & DIPD	Retrospective Family Pathology Q Retrospective Separation Experiences Q	VA: 72% PA: 46% SA: 26% PN: 24%

Study	Number of Participants	Source of Sample	Age (in years) Mean (SD)	Gender Male/Female	Country of Origin	BPD measure	Abuse Measure	Abuse Prevalence
Zhang et al., 2013	178	Outpatients	Not reported	Not able to quantify*	China	PDQ-4+ & SCID-II	CTQ	Moderate to Severe EA: 44.4% PA: 36% SA: 22.5% EN: 52.8% PN: 69.1%
Zweig-Frank & Paris 2002	59	Inpatients	M 50.9 (8.6)	10/49	Canada	DIB	DEQ	PA: 28% SA: 28%

Table 1: Summary of included studies. The following abbreviations were used: SA = sexual abuse, EA = emotional abuse, PA= physical abuse, VA= verbal abuse, EN = emotional neglect, PN = physical neglect.

*Not able to quantify means that samples included more than one personality disorder type and only overall gender splits rather than per diagnosis were provided.

Study/participant characteristics

Overall, there were 2,612 participants in the included studies. Based on the data from 18 papers the average age was 33.37 years (Watson et al., 2006; Martin-Blanco et al., 2014; Huang et al., 2012; Ogata et al., 1990; Johnston et al., 2009; Figueroa et al., 1997; Wong et al., 2010; Kingdon et al., 2010; Fernando et al., 2014; Golier et al., 2003; Zanarini et al., 2005, 2000, 1989; Wagner et al., 2009; Soloff et al., 2008, 2002; Links et al., 1988; Brodsky et al., 1995; Zweig-Frank & Paris, 2002), with 5 papers not reporting on the age of participant ($n=555$, 21% of participants: Battle et al., 2004; Zhang et al., 2013; Bandelow et al., 2005; Oldham et al., 1996). 16 studies reported on the gender split of their participants and based on this data, 81% ($n=1,372$) of participants were female and 19% ($n=322$) were male (Watson et al., 2006; Martin-Blanco et al., 2014; Huang et al., 2012; Ogata et al., 1990; Johnston et al., 2009; Figueroa et al., 1997; Wong et al., 2010; Kingdon et al., 2010; Fernando et al., 2014; Zanarini et al., 2005, 1989; Wagner et al., 2009; Soloff et al., 2008, 2002; Links et al., 1988; Zweig-Frank & Paris, 2002). The other 7 papers did not report this data, which accounted for 35% ($n=918$) of all participants (Battle et al., 2004; Zhang et al., 2013; Bandelow et al., 2005; Oldham et al., 1996; Golier et al., 2003; Zanarini et al., 2000; Brodsky et al., 1995).

All studies recruited from either inpatient or outpatient services or by public advertising number. Nine papers recruited participants from outpatient clinics ($n=883$), 7 papers recruited participants who were inpatients at psychiatric hospitals ($n=864$), 2 papers recruited both inpatients and outpatients ($n=182$), 2 papers recruited from outpatient clinics of general hospitals ($n=262$). In 2 papers it was unclear where participants were recruited ($n=314$), and in 1 paper participants were recruited both from outpatient clinics and advertisements in the surrounding community ($n=151$).

Measurement

Childhood Abuse

Six papers used the Childhood Trauma Questionnaire (CTQ) to measure self-reported levels of childhood abuse (Watson et al., 2006; Zhang et al., 2013; Johnston et al., 2009; Kingdon et al., 2010;

Fernando et al., 2014). The types of abuse measured by this questionnaire include sexual, emotional and physical abuse, as well as emotional and physical neglect. Of these 6 studies, 5 used the regular form and one used the CTQ short form. Other self-report questionnaires that were used included the Childhood Experience of Care and Abuse Questionnaire (CECA-Q : Huang et al., 2012), Patient History Questionnaire (Oldham et al., 1996), the Trauma History Questionnaire (Golier et al., 2003), Retrospective Family Pathology Questionnaire (Zanarini et al., 1989) the Retrospective Separation Experiences Questionnaire (Zanarini et al., 1989), the Sexual Experiences Questionnaire (Brodsky et al., 1995) and the Developmental Experiences Questionnaire (DEQ: Zweig-Frank & Paris, 2002). Two of the studies used their own self report questionnaires (Bandelow et al., 2005; Links et al., 1988). Standardised interviews were also used to measure childhood abuse and included the Familial Experiences Interview (Ogata et al., 1990; Figueroa et al., 1997), Abuse History Interview (Zanarini et al., 2005), the PTSD section of the Munich Composite International Diagnostic Interview (Wagner et al., 2009), Abuse History adapted from the Dissociative Disorder Interview Schedule (Soloff et al., 2008, 2002), and the Childhood Experiences Questionnaire – Revised (CEQ-R: Battle et al., 2004; Zanarini et al., 2000). Finally one paper simply asked whether an individual had experienced any childhood abuse during interview (Wong et al., 2006).

Borderline Personality Disorder

In order to confirm that participants fit the criteria for Borderline Personality Disorder various interviews and questionnaires were used. The Structured Clinical Interview Diagnostic (SCID-II) was used by 10 papers (Martin-Blanco et al., 2014; Huang et al., 2012; Zhang et al., 2013; Johnston et al., 2009; Bandelow et al., 2005; Wong et al., 2010; Kingdon et al., 2010; Fernando et al., 2014; Wagner et al., 2009; Brodsky et al., 1995). Of these papers Martin-Blanco et al used the Spanish version, Wong et al the Chinese version, and Bandelow et al along with Wagner et al used the German version. The Diagnostic Interview for Borderlines (DIB) and its revision DIB-R, another structured interview, was used in 9 papers (Ogata et al., 1990; Figueroa et al., 1997; Zanarini et al., 2005; Zanarini et al., 2000; Zanarini et al., 1989; Soloff et al., 2008; Soloff et al., 2002; Links et al., 1988; Zweig-Frank & Paris, 2002). The Diagnostic Interview for DMS-IV PDs (DIPD-IV) was used by one

paper (Battle et al., 2004) The Personality Disorder Questionnaire (PDQ), a self-report questionnaire was also used by 3 papers (Watson et al., 2006; Zhang et al., 2013; Oldham et al., 1996).

Abuse Prevalence

Prevalence of childhood sexual and emotional abuse varied quite substantially across studies. Sexual abuse prevalence ranged from 4.5% to 78.7% (mean of 36.9%), while emotional abuse prevalence ranged from 33% to 94% (mean of 63.2%). Emotional neglect prevalence ranged from 44.5% to 90% (mean of 63.1%) and was reported in 6 papers. While sexual abuse was reported in all 23 papers, emotional abuse was only reported in 9 of the papers. Physical abuse was reported in 19 of the papers and prevalence ranged from 15% to 61.4% (mean of 32.49%). Finally physical neglect was reported in 8 papers with prevalence ranging from 17% to 69.1% (mean of 40.89%). Prevalence figures from all the reviewed papers can be found in Table 1.

It is also possible that culture may play a role in abuse prevalence. In this review papers covered people from Asia (3 papers), Europe (6 papers), North America (13 papers) and one from Australia. For the European sample, sexual abuse prevalence ranged from 32.7% to 73.9% (mean of 52.8%), Asian sample prevalence ranged from 22.2% to 30% (mean of 24.9%), North American sample prevalence ranged from 4.5% to 90% (mean of 28.5%), and for Australia it was reported to be 43%. Emotional abuse ranged from 57.1% to 94% (mean of 70.75%) in Europe, was only reported once in Asia (prevalence 44.4%), ranged from 33% to 71.4% (mean of 56.8%) in North America and was reported to be 71% in the Australian sample. For physical abuse prevalence ranged from 30.6% to 52% (mean of 41.1%) in Europe, from 33% to 46.8% (mean of 38.7%) in Asia, from 15% to 61.4% (mean of 31.24%) in North America and was reported to be 39% in Australia. For emotional neglect prevalence ranged from 44.5% to 90% (mean of 63.8%) in Europe, was only reported once in Asia (prevalence of 52.8%), was not reported in the North American studies, and was reported to be 71% in Australia. Finally for physical neglect prevalence ranged from 21.1% to 57% (mean of 43.5%) in Europe, was reported once in Asia (prevalence of 69.1%), ranged from 17% to 24% (mean of 20.5%) and in the Australian sample was reported to be 43%.

Quality Review of Papers

The results of the quality review of the included papers can be found in Table 2. The results of this quality assessment revealed that many of the papers were of a high standard. All 23 studies scored low for study size, with not one explaining why they recruited the number of participants that they did.

Five papers achieved high ratings on both of the main criteria of interest (Martin-Blanco et al., 2014; Zhang et al., 2013; Johnston et al., 2009; Kingdon et al., 2010; Carvalbo Fernando et al., 2014). For these papers there was less variance in prevalence of moderate to severe levels of both sexual and emotional abuse, sexual abuse prevalence ranged from 22.5% to 63% and emotional abuse prevalence ranged from 44.4% to 94%. There was also less variance for physical abuse and neglect ranging from 30.6% to 52% and 21.1% to 69.1% respectively. Interestingly, there was no change to the prevalence range for emotional neglect when only taking into account these papers. As all these figures are for moderate to severe abuse it is likely that the prevalence levels would be much higher for milder levels of abuse.

Seven papers were rated as having moderate ratings on their measure of childhood abuse. Of these studies only three (Battle et al., 2004; Zanarini et al., 2000, 2005) reported prevalence for both sexual and emotional abuse, ranging from 4.5% to 31.4% and from 33% to 71.4% respectively. The highest prevalence levels of both forms of abuse come from Zanarini and colleagues' (2005) which used, the Abuse History Interview to assess prevalence. During this interview patients are provided with examples of each form of abuse and participants were asked to describe their own experiences. The lowest reported incidence of both sexual and emotional abuse was reported by Zanarini et al (2000), which used the CEQ-R. This semi-structured interview requires detailed information around the event in question to receive a positive rating, therefore relying on the participant's willingness to disclose sensitive memories and their memory for events that may have occurred many years ago, which could artificially lead to lower prevalence rates. Looking at these papers in regards to other forms of abuse and neglect none of them reported on emotional or physical neglect. For physical

abuse it was the Trauma History Questionnaire which produced the highest prevalence rate of 52.8% (Golier et al., 2003) while again it was the CEQ-R which produced the lowest prevalence rate of 24% (Zanarini et al., 2000).

None of the reviewed papers received low ratings for both these main criteria, childhood abuse and BPD diagnosis, however 10 papers did receive low ratings for their measures of child abuse (Ogata et al., 1990; Bandelow et al., 2005; Wong et al., 2010; Oldham et al., 1996; Zanarini et al., 1989; Wagner et al., 2009; Soloff et al., 2008 & 2002; Links et al., 1988; Brodsky et al., 1995). Of note, none of these papers reported prevalence of emotional abuse or neglect, but for sexual abuse prevalence ranged from 25.9% to 71%. Physical abuse was reported in 7 of these papers ranging from 15% to 61.4% and physical neglect was reported in 2 of the papers. No papers received low ratings for their measure of BPD.

On the methodological criteria only one study, Battle et al. (2004), achieved a high rating for both discussing potential bias and trying to control for it. The rest of the papers scored a moderate level indicating that while bias was discussed, nothing had been done to try and limit it. This suggests that bias is not being thought of until after the study has been conducted. This interpretation is supported by the fact that bias was only discussed as a study limitation in most papers. Overall, the included papers scored well for study design, setting and variables, making them on a whole fairly easy to replicate.

Paper	Childhood Abuse	BPD	Study Design	Setting	Variables	Bias	Sample Size
Bandelow et al., 2005	Low	High	Moderate	Moderate	Moderate	Moderate	Low
Battle et al., 2004	Moderate	Moderate	Moderate	Moderate	Moderate	High	Low
Brodsky et al., 1995	Low	High	Moderate	High	Moderate	Moderate	Low
Carvalho Fernando et al., 2014	High	High	Moderate	Moderate	High	Moderate	Low
Figuerola et al., 1997	Moderate	Moderate	Moderate	Moderate	High	Moderate	Low
Golier et al., 2003	Moderate	High	High	Moderate	High	Moderate	Low
Huang et al., 2012	Moderate	High	High	High	Moderate	Moderate	Low
Johnston et al., 2009	High	High	High	Moderate	High	Moderate	Low
Kingdon et al., 2010	High	High	High	Moderate	Moderate	Moderate	Low
Links et al., 1988	Low	Moderate	Moderate	High	Moderate	Moderate	Low
Martin-Blanco et al., 2014	High	High	High	Moderate	High	Moderate	Low
Ogata et al., 1990	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Oldham et al., 1996	Low	Moderate	Low	Moderate	Moderate	Moderate	Low
Soloff et al., 2008	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Soloff et al., 2002	Low	Moderate	Moderate	Moderate	High	Moderate	Low
Wagner et al., 2009	Low	High	High	Moderate	High	Moderate	Low
Watson et al., 2006	High	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Wong et al., 2010	Low	High	Moderate	High	Moderate	Moderate	Low

Paper	Childhood Abuse	BPD	Study Design	Setting	Variables	Bias	Sample Size
Zanarini et al., 2005	Moderate	Moderate	Moderate	Moderate	High	Moderate	Low
Zanarini et al., 2000	Moderate	Moderate	High	Moderate	Moderate	Moderate	Low
Zanarini et al., 1989	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Zhang et al., 2013	High	High	Moderate	High	High	Moderate	Low
Zweig-Frank & Paris 2002	Moderate	Moderate	Moderate	High	Moderate	Moderate	Low

Table 2: Ratings of the individual papers included in this review.

DISCUSSION

The results of this review suggest that emotional abuse, followed by sexual abuse are the most prevalent abuse types among individuals with BPD. Based on the reviewed literature, it appears that there has been more research into sexual abuse than emotional abuse. This might be due to the trend in research to examine the contribution of childhood sexual abuse to adult behaviour and psychiatric pathology, which began in the 1980s (Figueroa et al., 1997). Further, sexual abuse had been found to discriminate between individuals with BPD from other psychiatric diagnoses (Weaver & Clum, 1993). This review however highlights the vast range in reported sexual abuse, ranging from as little as 3.5% to at most 71%, with a mean of approximately a third. This raises some important questions: does how sexual abuse is measured impact on prevalence figures and, what role does it play in the development of BPD? Further it also raises the question as to why emotional abuse is not the main focus in more studies given the high prevalence rates reported when it is measured. These aspects of the review will be explored further below.

In this review the lowest prevalence figures for sexual, emotional and physical abuse (Zanarini et al., 2000) came from an interview-based measures, (CEQ-R), rather than self-report questionnaires. It is possible that either participants' did not feel comfortable disclosing histories of abuse to an interviewer they had just met or it may be that the detail required to achieve a positive rating was at too high a threshold. Support for the latter interpretation (threshold rather than level of comfort) can be evidenced from observation that the highest prevalence of sexual abuse also came from an interview measure, the Family Experiences Interview (Zanarini et al., 2005). In this interview questions are more structured and it relies less on the participant spontaneously recalling detailed examples. Another factor which may have contributed to this discrepancy may be the interviewer's technique. It is possible that the interviewers used for Zanarini and colleagues (2005) study were more

experienced and had the skill of putting people at ease. That combined with the structure of the questions may have led to this discrepancy. Future research could be to compare the prevalence rates using these two interviews would be of benefit.

Another important finding from this review is that the measurement tool used to measure childhood sexual abuse and emotional abuse can have a large influence on prevalence figures. As detailed above, thresholds, and directedness of the questions may contribute to these large variances in prevalence. On the other hand, perhaps high prevalence rates from self-report measures are due to over-reporting or that self-reports provide the protection of anonymity to enable disclosure. Further research however would be needed to test these theories. Nonetheless, it does highlight the need for researchers to justify why they have chosen the measure they have, and the need to consider the measure as a potential source of bias. This is also important given that there is currently no recognised gold standard for measuring childhood abuse.

While it may be possible that culture could affect prevalence results it is difficult to judge its role from this review. This is due to issue raised above of measurement choice. The CTQ was mostly popular in Europe, while more interview style ratings were used in North America. This makes it difficult to compare the prevalence results as we know that the measure can also have a great effect on results. Further there was an uneven cultural representation of the included studies, with the majority of studies originating from North America. In order to address the potential impact of culture, studies using the same measures of abuse across countries would be required.

The role which sexual abuse may play in the development of BPD has been questioned over the last fifteen years as research has shown that 20 to 45% of individuals with BPD do not report histories of childhood sexual abuse (Goodman & Yehuda, 2002). Further, a meta-analysis conducted by Fossati and colleagues (1999) found only a moderate association

between childhood sexual abuse and BPD. Our findings provide support Fossati et al.'s meta-analysis (1999) with, on average, only 30% of individuals across 23 studies who reported suffering childhood sexual abuse. This raises the question, if sexual abuse is not a sufficient predictor for the development of BPD then what is? Research has begun to reveal that sexual abuse does not often occur in isolation, and that individuals with BPD are more likely to have experienced multiple forms of abuse, which is often more severe and frequent than individuals without BPD (Laporte & Guttman, 1996). Therefore, other types of abuse to form an important role in the development of BPD and research began to examine this in more detail.

Emotional abuse in this review had a more restricted range from 44% to 94% (compared to 4.5% to 78.7% for sexual abuse) and appeared to be more prevalent than sexual abuse, with a mean prevalence of 63.2% compared to 36.9%. Past research that has found emotional neglect to be a strong predictor of BPD (Sabo 1997). The current paper supports Sabo's 1997 findings with high levels of emotional abuse (63.2%) and neglect (63.1%) reported. This also meshes well with both the attachment based theories and Linehan's theory of BPD, which both propose that disruption to a child's social and emotional world lead to disruption in emotional regulation. Therefore if emotional abuse or neglect and later emotional regulation are important features of BPD then treatments geared to tackle these features may have some effect.

The results also support both the theoretical and treatment rationale for intervention approaches that give prominence to the role of childhood trauma within the development and maintenance of BPD. For example, Bateman and Fonagy's developmental model centres on the ability to mentalize, which is the ability to hold someone else's mind in your mind (Bateman & Fonagy, 2006). In their theory early disruption of the attachment system, which is often due to childhood abuse or neglect, leaves individuals with BPD with a lower threshold for the activation of the attachment system and the deactivation of controlled

mentalization, which is linked with impairments in being able to distinguish between mental states of self and other (Fonagy & Luyten, 2009). This in turn can lead to hypersensitivity and increased susceptibility to interference by other people's mental states, and the poor integration of the cognitive and affective aspects of mentalization. This combination of impairments may explain why BPD patients are more likely to suffer from interpersonal difficulties, as well as high levels of affect dysregulation and impulsivity (Fonagy & Luyten, 2009). Along with the developmental aspect of this model there is also the neuroscience to underpin it. Neuroimaging studies have highlighted important brain regions in mentalizing including the medial prefrontal cortex, which has been shown to be involved mentalization, in other words when asked to infer the mental states of others (Fletcher et al., 1995; Gallagher et al., 2000; Gilbert et al., 2006). Further, a functional neural network between the ventromedial prefrontal cortex, posterior cingulate/precuneus and temporo-parietal junction when mentalizing the self and other has been identified (Lombardo et al., 2009). Mentalization Based Treatment (MBT) which was developed on the back of this theory aims to develop the individual's ability to mentalize and to develop more adaptive interpersonal behaviours (Jorgensen et al, 2013).

In contrast, Dialectic Behavioural Therapy (DBT) which is also used in the treatment of BPD is not based on a theoretical model and instead was a trial by error adaption of behavioural therapy to treat highly suicidal patients (Linehan & Wilks, 2015). DBT development was guided by clinical experience and was an attempt to apply both behavioural principles and social learning theory to suicidal behaviour. It also borrows from the philosophical concept of dialectics. It has evolved to be an individual based treatment program that aims to teach new skills, uses exposure-based techniques to help motivate change, and includes weekly meetings for the therapists to provide peer support (Lieb et al., 2004).

Both DBT and MBT have been the treatment modalities with the most research examining their effectiveness at treating BPD (Stoffers et al., 2012). A recent Cochrane review has shown both treatments to be beneficial with DBT has being found to be effective in reducing self-harm and suicide attempts as well as increasing social adjustment, and MBT being effective at treating the core symptoms of BPD such as interpersonal difficulties (Stoffers et al., 2012). It is interesting that both modalities are effective given one's lack of theoretical underpinning and direct link to the impact of childhood trauma. Perhaps there are certain treatment modalities which may be of more benefit to patients with BPD who have or have not suffered from childhood trauma. Unfortunately, there is a lack of research in this area to answer this question. Therefore it may be beneficial for future research to examine this in more depth.

This review also highlights the need for more research in the area of the childhood trauma prevalence. First, it would be important to ascertain the effects of different interview methods on the reported prevalence rates of childhood abuse. In the meantime, it is recommended that researchers use the CTQ and SCID-II when investigating childhood abuse within this population. Second, given the large amount of research, a meta-analysis in this area would help to clarify the importance of different types of childhood abuse and neglect in the development of BPD.

Trying to understand potential links between childhood trauma and disorder development is not unique to BPD, suggesting the possibility that there is a generalised association between trauma and complex psychopathology, albeit with nuanced differences between disorders. For instance, there is a significant body of literature suggesting a complex set of associations between types of childhood trauma and specific symptoms of psychosis (e.g. Read et al., 2005; Varese et al., 2012).

In conclusion, the results from this review confirm the existing research that suggests a link between childhood trauma and BPD. They also suggest that abuse type may also have an impact on this link, with emotional abuse appearing to have a stronger link over sexual abuse. However, further population level studies would be necessary to confirm this. Finally, the results of this review also suggest that research in this area is conducted with reasonable levels of methodological integrity, and also highlight the importance of measurement selection.

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THESIS AIMS

The main aims of this thesis are two-fold:

- 1) To examine whether a new Mentalization-Based Therapy (MBT) treatment framework for Borderline Personality Disorder leads to within-patient changes in psychiatric symptoms, using a retrospective case note review.
- 2) To evaluate predictors for completion of this programme.

PAPER 2: EMPIRICAL PAPER

TITLE: A retrospective examination of the effectiveness of a group-only Mentalization Based Therapy Intervention for Borderline Personality Disorder

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** Prepared in accordance to author guidelines for the Journal of Personality Disorders
(Appendix C)

ABSTRACT

A recent developmental model of Borderline Personality Disorder (BPD) and one that is gaining popularity focuses on mentalization. Following their exposition of this mentalizing model of BPD, Bateman and Fonagy developed the Mentalization Based Treatment (MBT) intervention for BPD (Bateman & Fonagy 2006). This intervention includes both group and individual therapy with the focus on the patient's relationship with the therapist and other members of the group. Promising evidence that MBT interventions are effective for treating symptoms of BPD is beginning to emerge (Stoffers et al., 2012). The purpose of this study was to examine the effectiveness of a group-only MBT intervention via a retrospective case note review. The results suggest that this group-only adaptation is an effective and well tolerated intervention in regards to drop-out rate. Significant decreases in paranoid ideation and interpersonal sensitivities were found along with decreases overall psychiatric symptom load, depression, and phobic anxiety were observed after the completion of the group. Finally, age and level of histrionic symptoms were found to be significant predictors of group completion, with older patients with less histrionic symptoms being more likely to complete.

INTRODUCTION

Borderline Personality Disorder (BPD) is traditionally thought of as hard to manage and to treat due to the often pervasive symptoms of affect instability, impulsivity, and interpersonal difficulties (Zanarini et al., 2005). Why individuals develop Borderline Personality Disorder (BPD) is still not clearly understood, but it is thought to involve a complex relationship between genetics, adverse childhood events and interpersonal difficulties (Lieb et al., 2004). The psychobiological hypothesis is that genetic factors interact with experiences of early adverse events to cause emotional dysregulation and impulsivity, which in turn could lead to dysfunctional behaviours, such as self-harm, psychosocial conflicts and deficits (Lieb et al., 2004). Indeed, BPD can be thought to be significantly heritable with approximately 42% to 68% of the variance associated with genetic factors (Gunderson, 2011). Further differences in the way the brains of individuals with BPD function such as when exposed to emotions or facial expressions have been found via studies involving magnetic resonance imaging (Gunderson, 2011).

A recent model of BPD development and one that is gaining popularity focuses on mentalization. Mentalizing can be defined as the ability to make sense of ourselves and others, including understanding the behaviours of others in terms of their likely thoughts, wishes, feelings and desires (Bateman & Fonagy, 2008a). There are three dimensions of mentalization: (a) modes of functioning (implicit vs. explicit), (b) objects subject to functioning (self vs. other) and (c) aspects of functioning (cognitive vs. affect; Choi-Kain & Gunderson, 2008). Bateman and Fonagy theorised that this ability develops as a key part of early attachment relationships which, if disrupted, can lead to the symptoms associated with BPD. It is hypothesised that it is the primary caregiver's marked and contingent mirroring of a child's internal states within a secure attachment relationship that allows the child to develop a capacity to mentalize. In this model the disruption is often due to psychological trauma such as abuse suffered during early childhood. As a result of this disruption the

individual may be left with a lower threshold for both the activation of the attachment system and the deactivation of controlled mentalization, which may result in difficulty differentiating between the mental state of the self and others. This difficulty may then leave the individual susceptible to being influenced by the mental states of others as well as with a poor integration of the cognitive and affective aspects of mentalization. The combination of these difficulties may underpin the high levels of affect dysregulation, impulsivity and interpersonal difficulties often associated with BPD (Fonagy & Luyten, 2009). Along with the developmental aspect of this model there is also neuroimaging evidence to support it. For example, the medial prefrontal cortex, has been shown to be involved mentalization, in other words when asked to infer the mental states of others (Fletcher et al., 1995; Gallagher et al., 2000; Gilbert et al., 2006). Further, a functional neural network between the ventromedial prefrontal cortex, posterior cingulate/precuneus and temporo-parietal junction when mentalizing the self and other has been identified (Lombardo et al., 2009).

It can be argued that mentalization as a concept has overlaps with mindfulness, psychological mindedness, and empathy (Choi-Kain & Gunderson, 2008). First, both mentalization and mindfulness involve directing attention to our own experiences in order to decrease impulsivity and reactivity. Further they both highlight the integration of cognitive and affective aspects of mental states. However they differ in that mindfulness is concerned with the present while mentalization can concern the past, present or future, further while mindfulness aims to accept the internal experience mentalization looks to construct meaning relating to these experiences. Second, psychological mindedness and mentalization are similar with both being interested in how the mind functions, however, psychological mindedness concerns only explicit or conscious consideration of mental states while mentalization involves the implicit consideration as well. Third, while both empathy and mentalization involve the appreciation of the mental states of others, empathy is more other-oriented and implicit while mentalization is both other and self oriented.

Treatment of BPD

Borderline Personality Disorder has been traditionally treated with psychotherapy, psychopharmacology or a combination of the two (Gunderson 2011). The evidence for either type of treatment is not supported by enough good quality evidence (e.g. randomised controlled trials). This unfortunately is not unusual, and there are many disorders without a large randomised controlled trial evidence base for psychological interventions. The most recent systematic review on psychological interventions for BPD examining Dialectic behaviour therapy (DBT), mentalization-based treatments (MBT), cognitive behavioural therapy (CBT), interpersonal therapy (IPT) and transference focused therapy (Stoffer et al, 2012). The results suggested that CBT, IPT and transference focused therapy were not effective in reducing the severity of BPD symptoms. DBT however, was found to be effective in reducing self-harm, suicide attempts as well as increasing social adjustment (Stoffers et al., 2012). DBT is an individual-based treatment program that aims to teach new skills, uses exposure-based techniques to help motivate change, and includes weekly meetings for the therapists to provide peer support (Lieb et al 2004). MBT was also found to reduce the severity of BPD symptoms. While DBT has been shown to reduce self-harm, it has not been shown to change symptoms of depression or hopelessness compared to treatment as usual (Bateman & Fonagy, 1999). MBT on the other hand has been shown to decrease these symptoms (Bateman & Fonagy, 2009). This however may be due to how research trials are designed with many DBT trials having the reduction of self-harm as a primary outcome measure or it may be due to the fact that DBT was originally designed to reduce suicide behaviour (Linehan & Wilks, 2015). Both of these interventions (DBT and MBT) are included in the Matrix, Scotland's guide to delivering evidence-based psychological therapies (2011) for the treatment of BPD.

Mentalization Based Treatment for BPD

Following their development of the mentalizing model of BPD, Bateman and Fonagy developed the Mentalization Based Treatment (MBT) intervention for BPD (Bateman & Fonagy, 2006). This intervention includes both group and individual therapy with the focus on the patient's relationship with the therapist and other members of the group. The overall aim of the intervention is to develop the individual's ability to mentalize and to develop more adaptive interpersonal behaviours (Jorgensen et al, 2013). One potential advantage of MBT is that it has been found to be cost effectiveness compared to treatment as usual as it can be administered by generic mental health professionals (who have received the appropriate training) and has been shown to save money with less medication required and fewer trips to Accident and Emergency Departments (Bateman & Fonagy, 2003).

MBT interventions do not claim to be entirely unique and indeed other therapies do employ techniques to help facilitate mentalization (Fonagy & Bateman, 2007). For example, DBT, CBT and CAT use slightly different language to discuss this concept such as mindfulness, self-states and validation (Fonagy & Bateman, 2007). MBT can also be seen as similar to CBT as they both employ techniques that encourage mentalization, however they differ both in terms of the models of the mind and behaviour, and in their mode of delivery (Bateman & Fonagy, 2006). For instance the roots of CBT can be found in social learning theory, while the roots of MBT are psychoanalytic. Further unlike CBT MBT there is no attempt to examine cognitive distortions outside the current patient-therapist relationship or to focus on the behaviour itself (Bateman & Fonagy, 2006). Overall what is unique about MBT is that it puts mentalization as the main focus of therapy and the main mechanism of change (Fonagy & Bateman, 2007).

Promising evidence that MBT interventions are effective for treating symptoms of BPD is beginning to emerge. Results of a randomised controlled trial comparing MBT with Structured Clinical Management (SCM) demonstrated that those in the MBT group showed a

faster decline in symptom distress including overall psychiatric symptom level, depression and interpersonal problems, as well as suicide attempts and hospitalisation (Bateman and Fonagy, 2009). The same research group have also reported results from a long-term follow-up study following MBT interventions. The results revealed that those in the MBT group had less suicide attempts, fewer hospital admissions, and were taking less medications over the 8 years since the intervention than the treatment as usual group. Further, those in the MBT group were more likely to be employed or in school in the years following treatment (Bateman & Fonagy, 2008b). It is possible that those who returned 8-years later were a naturally self-selecting group of patients who were continuing to do well, which could have biased the results. However, given the high retention rate (only 5 of 41 patients declined to participate) this is unlikely in this case.

Further trials have also been conducted that have examined the effectiveness of MBT. Jorgensen and colleagues (2013) found that those receiving an MBT intervention were more likely to achieve “recovery” and were significantly less distressed by psychiatric symptoms than patients receiving a supportive group intervention. Bales and colleagues (2012) also found that MBT was an effective intervention: reducing suicide, self-harm and care consumption, and increasing interpersonal functioning. A Cochrane review also suggested that MBT interventions are effective at treating core symptoms of BPD (Stoffers et al 2012). However, they did highlight the need for further research.

A common finding among these studies examining MBT for BPD is an effect on interpersonal functioning. Researchers are finding both a decrease in interpersonal problems (Bateman & Fonagy, 2009) and an increase in interpersonal functioning (Bales et al., 2012; Bateman & Fonagy, 2008b).

Predicting Treatment outcome for patients with BPD

Patients with BPD often require high levels of input from psychiatric services, which often come at a high treatment cost (Answell et al, 2007; National Institute for Mental Health in England 2003) Therefore, along with developing the evidence base for psychological interventions it is also important to be able to predict whether a certain treatment program would suit an individual patient and whether patient factors can predict treatment program completion.

Researchers have begun to investigate whether response to treatment can be predicted for this population. Bellino and colleagues (2015) examined predictors of treatment response in patients receiving Interpersonal Therapy for BPD (IPT-BPD) combined with Fluoxetine. They found that patients with more severe BPD symptomatology, higher levels of fear of abandonment, affective instability and identity disturbance were more likely to show improvement. Similarly, Rusch and colleagues (2008) investigated potential predictors of dropout from a DBT program and found that the patients who dropped out of the program had higher levels of anxiety and experiential avoidance at the start of treatment. Black and colleagues (2009) investigated predictors of response to STEPPS and found that high impulsivity was predictive of dropout, while higher baseline severity of psychiatric symptoms was associated with a greater improvement in both global functioning and BPD-related symptoms.

Bateman and Fonagy (2013) examined whether clinical severity of BPD, including level of symptom distress, and personality disorder traits could predict outcome after receiving either MBT or structured clinical management (SCM) treatments for BPD. They found that none of these factors impacted on treatment outcome in either treatment group. However, they did find that higher clinical severity of BPD may predict greater benefit from MBT over SCM. To-date only one systematic review has examined outcome predictors of psychotherapy for BPD. Barnicot and colleagues (2012) found that irrespective of treatment modality, higher

pre-treatment severity and patient-rated therapeutic alliance were the two main predictors of positive outcomes. Age had no impact on treatment outcome.

A Group-only adaptation of MBT for BPD

Having both individual and group components to an intervention can be both labour and cost intensive. If MBT could be delivered in a group-only format then it may be easier and less costly to implement within the NHS. A novel group-only adaptation of MBT for BPD has been developed in the North East of Scotland with routine implementation within local health service pathways for treatment of BPD. The adapted model differs from traditional MBT as it involves only group work and does not also involve individual therapy, and is of shorter duration than the traditional 18 month model lasting only 24 weeks. Further, it is run one day a week for a full day rather than multiple sessions a week. In the traditional model, patients have one individual MBT session and one group MBT session a week. The day is split into two halves: the morning focusing on psychoeducation and the afternoon focusing on therapy. The psychoeducation component has three parts to it: MBT education, going through the Structured Clinical Interview II (SCID-II) as a group, and MBT skills. The first weeks of psychoeducation cover attachment, emotional awareness, intervention plans, mentalization, and communicating with others. These topics are those which are covered by the traditional MBT-I group, which is considered to be an introduction to mentalizing and the pre-treatment phase to MBT (Bateman & Fonagy, 2006). The next weeks of psychoeducation involve the group going through a SCID-II interview together. In the final weeks this section is based on teaching MBT skills, which again is a return to content of the traditional MBT-I group. The morning psychoeducation sessions follow the same protocol for each group and the weekly agendas can be found in Appendix E.

For the entire programme the afternoons are dedicated to group MBT sessions based on the principles set forth by Bateman and Fonagy (2006). During these sessions therapists look for breaks in mentalization, which could be occurring in the room at the time or have occurred

over the past week. Breaks in mentalization are explored within the group looking for reasons as to why it may have gone offline. If this break in mentalization occurs during the group then the therapists will work with the patient or patients and try to re-establish mentalization. This mentalizing practice aims to help the patient to then cope with life stressors, such as with relationships at home or at work, outside of treatment as they will be able to identify their own breaks in mentalization and be able to pause and attempt to re-establish it. In order to ensure that these sessions adhered to the MBT model weekly peer supervision sessions were held after the group to discuss and reflect on that week's group. Further, the MBT adherence scale (see Appendix E) was also used at some sessions to ensure that sessions remained on model. Therefore, the overall treatment framework has potential to deliver similar outcomes to traditional MBT, but with benefits in cost-effectiveness via use of a group-format.

Rationale for Study

To date most research has focused on RCTs to examine the effectiveness of psychological interventions for BPD. Parallel evidence from the field of CBT in both depression and psychosis suggests reduced effect sizes in routine practice compared with RCT designs (Hans & Hiller, 2013; Nordentoft & Austin, 2014). Little is known about how funded research interventions function in real world services and how effectively they can be implemented. To address these shortfalls in healthcare research, Implementation science has emerged as a promising framework of enquiry with implementation-based research being defined as “scientific investigations that support movement of evidence-base, effective health care approaches from clinical knowledge base into routine use” (Rubenstein & Pugh 2006). Therefore, the purpose of this study was two-fold: first to examine for within-patient changes in psychiatric symptomatology and completion rate of the group-only adaptation of MBT within the context, and second, to examine whether we can identify hypothesised personality or interpersonal factors that would predict treatment completion.

The primary hypothesis was that attending the group-only program would lead to a decrease in overall psychiatric symptoms as well as in specific domains such as depression and interpersonal functioning as seen in studies using the traditional MBT protocol. The SCL-90 was used to test this hypothesis as it has been used in previous research of psychological therapies for BPD, including Bateman and Fonagy's RCT of MBT. The second hypothesis was that drop-out rates would be of the same magnitude of the traditional MBT treatment model. It was thought based on the available literature base that psychiatric symptom or personality disorder severity might impact on completion of the program. The Personality Diagnostic Questionnaire version 4 (PDQ-4) was used to examine personality disorder traits and diagnoses. It is also possible that a prevalence of childhood trauma may impact on treatment completion. This was hypothesised given the fact that MBT is based on a theoretical model which places importance of childhood trauma on the development of BPD. Therefore data from the Childhood Trauma Questionnaire (CTQ) was collected.

METHODS

In order to examine the effectiveness of a group-only adaptation of MBT a retrospective case note review of all patients who have completed the group since its inception in 2009 was conducted. In addition, semi-structured interviews were conducted with a small sub-sample in order to examine their subjective experience of the group. The first part of the study was deemed not to require ethical approval as it was a service evaluation and was conducted with Caldicott Approval granted by NHS Grampian (Appendix F). Ethical approval however, was sought and obtained for the interviews from the North of Scotland Research Ethics Board (Appendix G).

Measures

Data was collected from the psychotherapy files of all patients who had been referred to the group since it began in 2009 until April 2014. These data included: gender, age, relationship

status, childhood abuse or neglect, personality disorder traits, psychiatric symptoms before and after completing the group, whether the group was completed, clinician's impression of progress, and therapy offered after group completion. Routinely administered questionnaires were used to gather data on childhood abuse or neglect, personality disorder traits and psychiatric symptoms. A short interview was conducted with a sub-sample of patients between weeks 23 and 24 of the group to ascertain their views on participation in the group.

Childhood Trauma Questionnaire (CTQ)

The CTQ is a self-report questionnaire used to retrospectively examine childhood abuse and neglect experiences. Respondents are asked to rate the truth of each item (28 items) based on a 5-point Likert scale from never true to very often true. The instructions and test-items are largely phrased in terms of concrete, objective events and behaviours. Further, terms such as trauma, abuse and neglect are avoided due to their subjective, evaluative and stigmatizing qualities, which can arouse defensiveness (Bernstein et al, 1994). This approach has the advantage of avoiding the above-mentioned terms, which is hypothesised to maximise the accuracy of recall (Brewin et al, 1993). The internal consistencies for this measure are high ranging from .66 for physical neglect to .92 for sexual abuse in an adult sample of psychiatric outpatients (Bernstein & Fink, 1998). Test-retest reliability has also been found to be high with intra-class correlations ranging from .79 for physical neglect to .86 overall (Bernstein & Fink, 1998).

Symptoms Checklist -90 (SCL-90)

The SCL-90 is a self-report questionnaire that was originally designed to quantify symptoms in psychiatric outpatients (Derogatis et al, 1973). However, over the years it has evolved into a screening measure of symptom severity across psychiatric populations (Derogatis, 1983) and has become a commonly used outcome measure in research (Bech et al, 1993). The SCL-90 assesses symptom severity across nine different subscales: somatisation, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid

ideation, and psychoticism. Respondents are asked to rate the occurrence of 90 different symptoms over the past 7 days on a five-point Likert scale. It is then possible to calculate a global index of distress by taking the mean score. This scale was chosen as it has been found to have good reliability and a high internal consistency (Derogatis & Melisaratos 1983). This questionnaire is completed on week 1 of the HUB program and again on week 23. Initial investigations of internal consistency revealed ranges from a low of .77 for psychoticism to a high of .90 for depression (Derogatis et al., 1976), and .79 for paranoid ideation to .90 for depression (Horowitz et al., 1988). Test-retest reliability has also been found to be high ranging from .80 to .90 the different subscales (Derogatis et al., 1976). More recent research has shown a high reliability for the Global severity index (.96; Vallejo et al., 2007).

Personality Disorder Questionnaire-4 (PDQ-4)

The Personality Diagnostic Questionnaire (PDQ version 4; Hyler et al, 1988) is a self-report measure used routinely by the department. This measure consists of 99 true/false items, producing scores for 10 different potential personality diagnoses – one for each identified in the DSM-IV-TR personality disorder as well as two personality disorders noted in the DSM-IV-TR appendix. Cut-off scores for each personality classification have been developed and a total score greater than 50 is considered indicative of an increased likelihood of a PD diagnosis. This questionnaire has been used in research to screen for the presence of PDs (Davidson et al, 2001) but has been shown to produce higher rates of the likelihood of a PD diagnosis when compared to a semi-structured interview (Oldham & Skodol, 2000). Internal consistency for this measure has been shown to vary across personality disorders ranging from as low as .42 for obsessive compulsive to .71 for paranoid and schizotypal (Wilberg et al., 2000).

Statistical Analyses

All statistical analyses were performed using SPSS version 16 and an alpha level of 0.05 was used throughout. In order to examine changes in psychiatric symptoms the SCL-90

subscales were first tested for normality using the Kolmogorov-Smirnov test and paired *t*-tests were used to compare pre and post scores. This test of normality was chosen as it is conservative for large samples (Field, 2103). As all SCL-90 subscales were found to be normally distributed there was no need for non-parametric statistics. In order to examine predictability of group completion associations between the pre-group variables were assessed using both point-biserial correlations for normally distributed data and Mann Whitney tests for non-normally distributed variables. Variables that were significantly associated with group completion were then entered into a series of binary logistic regressions to ascertain what factors predicted group completion. Regression models were then compared (Field, 2013). Models were compared to choose which best fit the data by examining for changes in the Chi-Square generated from the Omnibus Test of Model Coefficients. Models ranged from the simplest, with just one predictor, to the most complex with three predictors. The model which explained the most variance above and beyond the most basic model was explored further.

RESULTS

Descriptive Statistics

In total *n*= 152 individuals have been referred to the group since it began in 2009. Of these patients *n*= 100 went on to complete the group and 52 did not complete, representing a 67% completion rate. Descriptive details of these patients are detailed in Table 1.

Table 1: Descriptive statistics of the patients included in the study.

	Range or Prevalence (counts/%)	Mean (SD)
Gender	121 (79%) Female 31 (20%) Male	
Age in years	18-62	35.17 (10.08)
Relationship Status	76 (50%) single 34 (22.4%) in a relationship 19 (12.5%) separated 23 (15%) not reported	
PDQ Borderline score	2-9	6.82 (1.79)
PDQ Total Symptom Score	18-83	52.36 (12.44)

Patients reported high levels of emotional abuse and neglect. The prevalence figures from the CTQ are detailed in Table 2.

Table 2: Prevalence of childhood abuse as reported in the CTQ.

Abuse Type	None	Low to Moderate	Moderate to Severe	Severe
Emotional	12.8%	15.6%	14.9%	56.7%
Physical	44.7%	11.3%	9.2%	34.8%
Sexual	41.5%	6.7%	11.9%	40%
Emotional Neglect	12.1%	22%	20.6%	45.4%
Physical Neglect	31.7%	17.3%	20.9%	30.2%

Of the patients who had already received their post-group follow up appointment (offered at least 6 weeks post completion) 45.1% had not been offered additional therapy within the department. A chi-square analysis revealed that patients who were deemed to have done well in the group were more likely to received further therapy within the department ($p<.0001$).

Changes in symptoms

Paired-sample *t*-tests revealed significant decreases in psychiatric distress, both overall ($p=.011$) and for specific symptoms including interpersonal sensitivities ($p=.008$), depression ($p=.008$), phobic anxiety ($p=.022$), paranoid ideation ($p=.001$) and psychoticism ($p=.012$) after completing the group. Effect sizes for these changes ranged from small to medium, with paranoid ideation having the largest (Cohen's *D* of 0.44), followed by depression (0.35) and interpersonal sensitivities (0.34). Table 3 details the results of these analyses using scores on the SCL-90 to measure psychiatric distress.

There is, however, a potential problem with conducting a number of comparisons as one increases the potential of detecting a false-positive; in other words detecting a significant difference when one really does not exist. In order to control for this problem the Holm Sequential Bonferroni correction was applied. This method, first described by Holm (1979), is a sequentially rejective method, meaning that hypotheses are rejected one at a time until no further rejections can be done. This method increases the power of detecting more than one correct rejection of the null hypothesis (Holm 1979; Rice 1989) compared to the traditional Bonferroni correction. This method was chosen given the fact that based on previous studies we were expecting more than one significant difference. When this method was applied the following decreases remained significant: paranoid ideation and interpersonal sensitivities, while depression was reduced to a trend.

Table 3: Results from the paired samples t-tests comparing scores on the SCL-90 before and after completing the group.

SCL-90 Measure	Pre-HUB mean	Post-HUB mean	T-score	P value	Effect Size (Cohen's D)	Holms Correction
Global Index of Distress	2.31	2.12	2.63	.011*	0.33	NS
Somatisation	1.90	1.79	1.17	.248		NS
Interpersonal Sensitivities	2.69	2.42	2.72	.008**	0.34	Sig
Depression	2.91	2.65	2.74	.008**	0.35	Trend
Anxiety	2.29	2.09	1.98	.052		NS
Hostility	1.96	3.08	-0.871	.387		NS
Phobic Anxiety	2.00	1.78	2.34	.022*	0.29	NS
Paranoid Ideation	2.13	1.80	3.48	.001**	0.44	Sig
Psychoticism	1.90	1.68	2.59	.012*	0.33	NS

Table 4: Correlations and Mann Whitney tests examining the relationships between pre-group measures and group completion.

Pre-group variable	Correlation with Completion (<i>R/p-value</i>)	Mann Whitney Result (<i>Z/p-value</i>)
Paranoid PD symptoms		-.343 (.731)
Schizoid PD symptoms		-.744 (.457)
Schizotypal PD symptoms		-.858 (.391)
Narcissistic PD symptoms		-1.09(.274)
Borderline PD symptoms		-1.69(.090)
Antisocial PD symptoms		-1.48(.139)
Avoidant PD symptoms		-.773(.440)
Dependent PD symptoms		-1.18(.240)
Obsessive-Compulsive PD symptoms		-1.63(.102)
Negativistic PD symptoms		-2.14(.032)*
Depressive PD symptoms		-.408(.683)
Histrionic PD symptoms		-2.30(.022)*
Total PD symptoms	-.096(.242)	
Age	.242(.003)*	
SCL-90 GSV	-.049(.564)	
SCL-90 Anxiety	-.033(.699)	
SCL-90 Interpersonal sensitivities	-.037(.669)	
SCL-90 somatisation	.079(.355)	
SCL-90 obsessive-compulsive	-.031(.718)	
SCL-90 depressive	-.032(.706)	

Pre-Group variable	Correlation with Completion (R/p-value)	Mann Whitney Result (Z/p-value)
SCL-90 Hostility	-.131(.126)	
SCL-90 Phobic anxiety	-.116(.175)	
SCL-90 Paranoid ideation	-.133(.119)	
SCL-90 psychoticism	-.029(.732)	
CTQ-Emotional Neglect	.113(.182)	
CTQ-Emotional Abuse		-0.225 (.822)
CTQ-Sexual Abuse		-0.134 (.894)
CTQ-Physical Abuse		-1.175(.240)
CTQ-Physical Neglect		-0.580 (.562)

Binary Logistic Regressions

Based on the correlational analyses, the data were fitted to a series of binary logistic regression analyses. The first step in this analysis was to compare the three models: (a) Age, (b) Age and Histrionic symptoms and (c) Age, Histrionic symptoms and Negativistic Symptoms. This sequence of models was chosen based on the strength of the relationship with group completion, starting with the strongest, Age (see Table 4). The results of this analysis revealed a significant change in Chi-Square statistics only when Histrionic symptoms were added to the model. As model B significantly added to the explained variance it was chosen as the model of interest.

Table 5: Results from the Omnibus Tests of Model Co-efficient for the three models of interest.

Model	Chi-square Block	Significance
Age	8.48	.004**
Age & Histrionic	4.73	.030*
Symptoms		
Age, Histrionic Symptoms	.268	.650
& Negativistic symptoms		

The accuracy of the chosen model at correctly classifying individuals as having completed the group or not was 65.5% when only the constant was included and this increased to 70.0% when Age and Histrionic symptoms were added as predictors. The accuracy of the model with only the constant is high due to the fact that in the sample 65% completed the group, which means that for the data assuming a patient completed the group would have been correct 65% of the time. According to the Wald statistic (Field, 2013), both Age (Wald: 6.27, $p=.012$) and Histrionic symptoms (Wald: 4.58, $p=.032$) were significant predictors. The overall statistical results from the analysis of Model B can be found in Table 6.

Table 6: Odds Ratios from the model of interest.

	b	95% CI for Odds Ratio		
		Lower	Odds	Upper
Included				
Constant	-.317			
Age	.047	1.01	1.05	1.09
Histrionic	-.212	.666	.809	.982
Symptoms				

Interviews

Six patients completed the post-group interviews to discuss their experiences. The themes that emerged from these interviews was that the patients could see an improvement in their interpersonal functioning having learnt to stop and pause before reacting and to stop before you get carried away. Further they also felt it was beneficial to learn that they were not alone and that others experienced similar difficulties. Some example quotes to illustrate these themes are as follows: said “It was quite nice to see, meet other people that had similar ways of managing and coping with things so you didn’t feel so isolated and odd”, and “Like putting the pause button on and stopping, thinking before and, umm, trying not to revert back you know with every situation, and, umm, just trying to think of the here and now”.

DISCUSSION

This first investigation of a group-only adaptation of MBT has produced some promising and important results. First, the results suggest that a group-only MBT intervention is an effective, acceptable (based on drop-out rate) adaptation of the traditional MBT-intervention for treating patients with BPD. Second, it appears that patients who are older and have fewer Histrionic personality symptoms (based on PDQ-4 scores), in other words patterns of

excessively trying to draw attention to oneself, are more likely to complete this group. Third, the prevalence figures of childhood abuse and neglect add to the literature base on the importance of these factors on the development of BPD.

The results comparing pre and post group SCL-90 scores illustrated a decrease in overall psychiatric symptom load and specific domains including interpersonal sensitivities, depression, phobic anxiety and paranoid ideation. Unfortunately, only paranoid ideation and interpersonal sensitivities survived the Holm sequential correction and therefore all other changes shown to be significant pre-correction should be interpreted with caution. However, these results did show similar patterns of decreases in overall psychiatric symptomatology and interpersonal insensitivities as previous studies of traditional MBT interventions (Bateman & Fonagy 2009; Bale et al 2012; Jorgensen et al 2013). For example, the three previous studies demonstrated decreases in the Global Index of Severity (SCL-90), which was also found in the current study. Interestingly, while the current study showed a smaller magnitude of change, the patients in this study had higher levels of psychiatric symptoms prior to treatment, which may have impacted on this. Further, the current study found decreases in depressive symptoms, which was also found by Bateman and Fonagy (2009) using a different measure, the Beck Depression Inventory. This suggests that the group-only intervention is an effective adaptation of the traditional MBT one. However, further research such as an RCT would be necessary to strengthen these findings.

The significant decreases in paranoid ideations and interpersonal sensitivities may also be linked to treatment content. Being curious about other people's minds is a central part to mentalizing so it is possible that by encouraging curiosity and trying it out in the group those with paranoid ideations begin to realize that they are not alone in their thinking. It is possible that this realization may then in turn lead to a decrease in symptoms. Similarly, by discussing attachment and inter-personal interactions in the morning psychoeducation groups it is likely that patients are able to increase their insight into their inter-personal styles, making it easier

to work on these issues in the afternoon MBT therapy groups. Then, in the afternoon, by practicing mentalizing and interacting with other patients, to learn to be able to stop and pause before reacting and to see alternative perspectives, all of which would aid in decreasing interpersonal sensitivity symptoms. Further research is necessary to confirm these theories.

One of the proposed advantages of MBT interventions compared to other treatments is that it can be a cost effective treatment due to the group component and the fact that it can be administered by generic mental health professionals (Bateman & Fonagy, 2008b). This group only-adaptation may be an even more cost effective intervention as it does not have the individual therapy component as traditional MBT interventions and is 24 weeks in duration rather than 18 months. Research in regards to the cost-effectiveness of group versus individual therapy in general has been mixed. One systematic review comparing group and individual CBT found that group CBT is more cost-effective when treating depression or children but less cost-effective when treating drugs and alcohol dependency, anxiety or social phobias (Tucker & Oei, 2006). With regards to treatment of BPD, Bateman and Fonagy (2003) were able to demonstrate that MBT (which included both group and individual therapy) was more cost-effective than treatment as usual. However, health economic research into the potential added cost effectiveness of this group-only MBT intervention would be necessary to investigate this possibility fully.

There was a low drop-out rate with only 33% of patients not completing the treatment program. This drop-out rate was similar to other studies of MBT interventions, with Bateman and Fonagy (2009) having a drop-out rate of 27%, and Jorgensen and colleagues (2013) a 33% drop-out rate. This suggests that this group-only format is as well tolerated as other MBT interventions due to the similar rates of completion and drop-out from treatment. However, further research with a comparison therapy would be necessary to ascertain

whether this group-only intervention has better retention rates than other forms of therapy for BPD.

It is also possible to compare the results of the current study with other psychological interventions for BPD. For instance, this group-only MBT intervention has a lower drop-out rate of 33% compared to DBT which was been found to have a drop-out rate of 46% (Rusch et al., 2008) and on par with Systems Training for Emotional Predictability and Problem Solving (STEPPS) when used as an add on treatment (Blum et al., 2008), and lower then when STEPPS is used as a stand-alone (47% drop-out rate; Alesiani et al., 2014). Further, like these two other treatments, this group-only approach was able to reduce overall psychiatric symptom loads. However, as different measures were used this prevents a direct comparison. Ideally, a RCT comparing this group-only MBT intervention with either DBT or STEPPS would be conducted in the future to allow for a direct comparison.

The data from this study also fit well with the mentalizing model of BPD. As discussed earlier, this model proposes that in BPD a lack of mentalizing may be associated with interpersonal difficulties and emotional dysregulation (Fonagy & Luyten, 2009). By focusing on increasing mentalization capacity within this group intervention via psychoeducation and group therapy patients experienced a drop in interpersonal difficulties and overall psychiatric symptom load. While mentalization capacity was not able to directly measured in this study it suggests a direction for future research into this group-only adaptation of MBT.

When interpreting the results of this study it is also important to consider the intrinsic healing nature of groups and the common healing factors associated with any psychological treatment. For example, the work of Wampold and Impel (2015) has shown that almost 70% of the effectiveness of psychotherapy can be accounted for by factors such as the therapeutic alliance, and adherence to the therapeutic protocol, which are common among all established forms of psychotherapy. Further, research has shown that there are similar common factors

in group psychotherapy, including group cohesion, and allegiance to the group (Budman et al., 1988). Therefore, it is likely that some of the change observed in this study is due to these common factors.

In addition to these factors one also has to be mindful of allegiance effects as research has shown that the therapist's background, therapy style and choice of intervention can impact on therapy outcomes (Nathan et al., 2000). While these might impact on our results the therapists involved in delivering the groups in this study came from multiple backgrounds including nursing, psychiatry and clinical psychology. Further, they varied in their level of training and interest in MBT. Therefore, it is likely that allegiance effects would not have such an impact on our results as in studies where only one therapist or therapists from one background are used.

This study demonstrates that patients who are older and have fewer Histrionic personality symptoms, in other words problematic interpersonal styles which involve drawing attention to one, are more likely to complete the group. However, it should be noted that even though these are significant predictors of completion they only explain a small percentage of the variance. As seen in the binary logistic regression there is only a 5% increase in prediction accuracy when age and histrionic symptoms were added to the model. It is possible to argue that while these variables may be statistically significant predictors they may not be clinically relevant ones. The odds ratios for age and histrionic symptoms were both suggestive of small effect sizes close to 1, which is the threshold at which the direction of the effect changes (Field, 2013). On the other hand, there is evidence to support those BPD patients with higher levels of histrionic personality symptoms are more likely to drop out of treatment (Alesiani et al., 2014). It is also possible for sexualized mentalization by a father could lead to histrionic symptoms in patients. This may be due to a confused self-image as both a little "temptress" to their father and one who rouses their mother's jealous hostility leading to difficult interpersonal styles and the need for attention (Herman, 2000).

Another important factor to consider is that with such a high completion rate (65% in our sample) by guessing a patient completed the group one would be correct 65% of the time. Consequently, there is a relatively small proportion of unexplained variance (only 35%) in the current sample. By taking age and histrionic symptoms into account leaves only 30% left to be explained, which raises the question what factors make up the unexplained 30%? Further research would be necessary to explore this issue further.

Unlike previous research (Bellino et al., 2015; Rusch et al., 2008; Black et al., 2009) the current study did not find any association between pre-intervention levels of overall psychiatric symptom load or more specific symptoms such as anxiety or paranoia and completion of the group. This may be due to the fact the previous literature has used other types of interventions rather than MBT based ones, and this is the first time that an MBT intervention has been examined in this manner. In this research all the interventions studied had individual therapy components to them; therefore it is possible that the group only nature of this intervention means that pre-treatment symptom load does not impact on completion.

The role of adverse events during childhood, namely childhood trauma, in the development of BPD has been quite extensively researched (Briere & Elliot, 2003; Bornovalova et al, 2006; Watson et al, 2006). The data from the CTQ adds to the literature on the prevalence of childhood abuse in individuals with BPD. In our large sample of BPD patients there was a high prevalence of emotional abuse, with 71.6% of the population reporting moderate to severe levels. On the other hand, 51.6% reported moderate to severe levels of sexual abuse. Similar prevalence figures were also found in the case series. These prevalence figures fit well both with Perrin and colleagues 2015 systematic review, which showed higher prevalence's of emotional abuse than sexual abuse and with a meta-analysis conducted by Fossati and colleagues (1999) which found only a moderate association between childhood

sexual abuse and BPD. They also lend support to the theory that the patients involved in the group that was studied resembles the general BPD population.

Of interest we did not find a relationship between childhood abuse and group completion. This may be due to the fact that such a large proportion of the sample had experienced some form of childhood abuse, leaving very few patients who had not experienced any abuse to allow for any association to be found. It is also possible that this high level of abuse prevalence makes this group an appropriate choice of intervention for BPD, as the theory of mentalization is underpinned by the experience of adverse childhood events. Further research however would be necessary to support this hypothesis.

There are several limitations to the current study. The first is that there was no comparison or control group. This means that it is not possible to determine how much of the observed changes in symptoms and functioning was due to attending the group-only MBT intervention and how much may simply be due to the passage of time or the healing factors associated with attending a group. However, given that the observed changes were similar domains to those seen in previous research of MBT interventions it is likely that at least some of the observed changes are due to the intervention. The only way, to answer this question with any certainty would be to conduct further a RCT comparing this group-only MBT intervention with another intervention or a waiting-list control.

Another limitation was that we were not able to investigate the mechanisms of change, in other words what drove the observed decreases in symptomatology, was it the focus on mentalization, was it intrinsic healing factors associated with groups (Yalom & Leszcz, 2005), or a combination of the two. Given previous research showing that MBT was more effective than a supportive psychotherapy group (Bales et al., 2012) it is most likely a combination of the focus on mentalization and the healing factors associated with group therapy. In addition, the small interview sample also suggests that both mentalization and

generic group factors may have driven the observed changes. However, further research such as a case series would be of benefit to help to tease these factors apart.

The final main limitation to this study was that we were not able to investigate whether there is a change in mentalizing capacity following group completion. Mentalization has been notoriously difficult to operationalize and measure in research. This may be due to the fact that an individual's mentalizing capacity might vary on the different polarities of mentalizing which include: a) automatic-controlled, b) internally focused-externally focused, c) self-other orientation, and d) cognitive-affective processes, and therefore a complete measure would need to consider all these polarities. Fonagy and colleagues (1998) have developed a reflective functioning measure for the Adult Attachment Interview and there have been attempts to develop questionnaires which tap into the different polarities of mentalizing such as the Beliefs about Emotions Scale (Rimes & Chalder 2010) or the Psychologically Mindedness Scale (Shill & Lumley 2002) but none that measure them all. This leaves researchers either having to administer multiple questionnaires to try to cover all the polarities or limiting their investigation to specific polarities. Therefore, it would be beneficial to develop a questionnaire which measures all of the polarities in order to aid in future research of MBT interventions.

The history effect, which is when extraneous variables over which the researchers have no control may impact the results, may also be worth considering as having potential impact on the results of this study. For example, there are factors such as changes in medication and support from the community mental health team, which have the potential to impact on psychiatric symptom level, that were not measured in this study. It is possible that given the group runs for 24 weeks that changes in these domains may occur and could impact on the functioning of the participants. Therefore, it would be important in future research to measure such variables so that they can be added as co-variables to statistical analyses as required.

A limitation of the predictability analysis is that the data is based on a retrospective case note review rather than a prospective study designed specifically to examine predictability of group completion. Therefore, our lack of finding clinically relevant predictors of group completion does not necessarily suggest that they do not exist, simply that they were not contained in the data we had available. Given that this group is an intervention based on mentalization it could be hypothesised that reflective functioning or mentalizing capacity may be associated with completion. It is also possible that attachment style may be an important predictor of completion. Research by Fonagy and colleagues (1996) has suggested that BPD patients with a dismissing attachment style were more likely to gain benefit from psychotherapy. Therefore, it is possible that more entrenched unresolved attachment styles may make patients less likely to complete. This idea is supported by Levy and colleagues (2006) who found that BPD patients with an unresolved attachment style prior to therapy were less likely to show any changes in this domain. It is possible that those with unresolved attachment styles have more experiences of childhood trauma making it more difficult for these individuals to focus on the here and now, which is the basis of MBT interventions. Previous research has shown that BPD patients with high levels of childhood trauma are more likely to show more unresolved attachment styles, lower reflective functioning and less resolution of loss during psychotherapy (Fonagy et al., 1996; Levy et al., 2006). However, further research is necessary in order to explore these potential relationships.

Future Research

The results of this paper open up exciting research avenues. First, conducting an in-depth case series of patients attending this group-only intervention would allow one to track changes in symptomatology over the course of the intervention and to ascertain whether different symptoms such as interpersonal difficulties or paranoid ideation have the same patterns of change. For example, by administering the Inventory of Interpersonal Problems (Horowitz et al, 1988), a well-used measure of interpersonal functioning, at numerous time-

points over the course of the group it would be possible to ascertain whether there is a linear decrease in symptoms or whether there is perhaps a relationship between content from the morning session and symptom levels.

Second it is important to conduct a study with a wait list control. This would allow researchers to assess what changes are a result of the group and which are due to the passage of time. Further, as discussed above, it would be of interest to conduct an RCT comparing this MBT group-only intervention with a supportive therapy group or other group intervention for BPD. This would allow researchers to ascertain what changes or level of changes in symptoms are unique to this group therapy and which are common to a generic group therapy for BPD.

Lastly, it would be of interest to measure mentalizing capacity over the course of this group and other MBT interventions. Such a measure could ascertain whether there is a correlation between mentalizing capacity and symptom reduction. However, as mentioned earlier there is no one good measure of all the polarities of mentalization and therefore multiple questionnaires would be needed or else a new one developed.

In conclusion, the results of this paper demonstrates preliminary evidence that a group only 24-week MBT intervention may be an effective and well tolerated (in terms of drop-out rate) treatment for BPD. Second, it demonstrates that an MBT intervention can be successfully implemented in NHS Scotland with similar retention rates and treatment effects seen in RCTs and other research funded studies of MBT.

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APPENDIX A

GUIDE FOR AUTHORS

Description

Founded in 1961 to report on the latest work in psychiatry and cognate disciplines, the Journal of Psychiatric Research is dedicated to innovative and timely studies of four important areas of research:

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PREPARATION

Article structure

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Reference to a journal publication:

Van der Geer J, Hanraads JAJ, Lupton RA. The art of writing a scientific article. *J Sci Commun* 2010;163:51–9.

Reference to a book:

Strunk Jr W, White EB. *The elements of style*. 4th ed. New York: Longman; 2000.

Reference to a chapter in an edited book:

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Further considerations

- Manuscript has been 'spell-checked' and 'grammar-checked'
- References are in the correct format for this journal

APPENDIX B

Paper Number	Type of Study (cohort etc)	Sample Size	BPD measures used	Inclusion/Exclusion criteria	Abuse Measure used	Abuse type examined	Abuse Prevalence

APPENDIX C

Table of single gender studies excluded from the systematic review.

Authors (year)	Journal published in	Gender	Number of Participants
Laporte & Guttman (1996)	J of Personality Disorders	Females	366
Paris, Zweig-Frank & Guzder (1994)	J of Nervous and Mental Disease	Males	61
Paris, Zweig-Frank & Guzder (1994)	Comprehensive Psychiatry	Females	55
Wagner & Linehan (1994)	J of Personality Disorders	Females	37
Chan et al., (2005)	Traumatology	Females	36
Rusch et al., (2011)	Eur Arch Psychiatry Clin Neurosci	Females	35
Van Den Bosch et al., (2003)	Australian & New Zealand J of Psychiatry	Females	64
Laporte et al., (2015)	Child Maltreatment	Females	53
Laporte et al., (2011)	J of Personality Disorders	Females	56

APPENDIX D

Journal of Personality Disorders

Instructions to Authors

Types of Articles

Regular Articles: Reports of original work should not normally exceed 30 pages (typed, double-lined spaces, and with standard margins, including tables, figures, and references). Occasionally, an author may feel that he or she needs to exceed this length (e.g., a report of a series of studies, or a report that would benefit from more extensive technical detail). In these circumstances, an author may submit a lengthier manuscript, but the author should describe the rationale for a submission exceeding 30 pages in the cover letter accompanying the submission. This rationale will be taken into account by the Editors, as part of the review process, in determining if the increased length is justified.

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Figures must be submitted separately as graphic files (in order of preference: tif, eps, jpg, bmp, gif; note that PowerPoint is not acceptable) in the highest possible resolution. Figure caption text should be included in the article's Microsoft Word file. All figures must be readable in black and white.

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Sample References:

Davis, C. G., & McKearney, J. M. (2003). How do people grow from their experience with trauma or loss? *Journal of Social & Clinical Psychology, 22*(5), 477-492.

Dweck, C., & Wortman, C. (1982). Learned helplessness, anxiety and achievement. In H. Kron & L. Laux (Eds.), *Achievement, stress, and anxiety* (pp. 93-125). Washington, DC: Hemisphere Publishing Group.

Roelofs, J., Meesters, C., Ter Huurne, M., Bamelis, L., & Muris, P. (2006). On the links between attachment style, parental rearing behaviors, and internalizing and externalizing problems in nonclinical children. *Journal of Child and Family Studies, 15*, 331-344.

APPENDIX E

HUB DAY

MBT EDUCATION

Week 1

Contracts and Rules of Engagement

10.30 – 10.45 Business Meeting

10.45 – 12.15 Contracts and Rules of Engagement

12.15 – 13.00 Lunch

13.00 – 14.30 Mentalization Based Therapy

Hub Day

MBT EDUCATION

Week 2

Mentalization Based Therapy

1030-1045 Business Meeting

1045-1215 Contracts
Reflection Work

Mentalization Based Therapy, What is it?

12.15-1300 Lunch

13.00-14.30 MBT

HUB DAY

MBT Education

Week 3

Attachment

1030 – 1045 Business Meeting

1045 – 1215 Attachment and Reflection work

1215 – 1300 **Lunch**

1300 – 1430 **MBT**

Hub Day

MBT Education

Week 4

Mentalizing Emotions

1030-1045 Business Meeting

1045-1215 Reflection Work – Week 3
Emotional Awareness

Exercise

1215-1300 Lunch

1300-1430 **MBT Group**

Hub Day

MBT Education

Week 5

Intervention Plans

1030 -1045 **Business Meeting**

1045 – 1215 **My Intervention Plan**

Thinking about Interventions

Reflection work

1215 – 1300 **Lunch**

1300 – 1430 **MBT**

Hub Day

MBT Education

Week 6

Understanding 'My Personality Traits'

10.30-10.45	Business Meeting
10.45-12.15	Reflection Work - 'My Personality traits'
	My Personality Traits
	Reflection work for next week
12.15-1300	Lunch
1300-1430	MBT

Hub Day

MBT Education

Week 7

Mentalizing 'Me and My Life'

10.30-10.45	Business Meeting
10.45-12.15	'Me and My Life' Reflection work and Discussion Reflection Work for next week – 'How I communicate'
12.15-13.00	Lunch
1300-1430	MBT

Hub Day

MBT Education

Week 8

Mentalizing – 'How I Communicate With Others'

6	Very good	The therapist demonstrated skill and expertise in handling this issue
7	Excellent	The therapist demonstrated a high level of excellence and mastery in this area

MBT scale

Item name	Notes adherence	Adherence rating	Notes quality	Quality rating
1. Engagement, interest and warmth		This item is not rated for adherence	4: Therapist seems to be reasonably and consistently engaged, warm and genuinely interested. He/she seems to care for the patient in a positive way. There are several comments that convey this attitude	
2. Exploration, curiosity and a not-knowing stance			4: Therapist asks appropriate questions to promote exploration, provoking curiosity about motivations of self and others and takes a genuine stance of "not-knowing" but attempting to find out	
3. Challenging unwarranted beliefs			To be rated for quality even if specific interventions are lacking 4: Therapist confronts appropriately and challenges unwarranted beliefs about self and others	
4. Adaptation to mentalizing capacity		This item is not rated for	4: Therapist seems to have adapted to the patient's mentalizing capacity. His/hers interventions are appropriately	

		adherence	short, concise and non-flamboyant	
5. Regulation of arousal			4: Therapist takes an active role in keeping the arousal level at optimal rate (not too high so patients lose their capacity to mentalize; not too low so session becomes affectively flat)	
6. Stimulating mentalization through the process			4: Interventions are aimed at stimulating mentalization of self and others, maintaining process and minimally concerned with content and interpreting content in order to generating insight	
7. Acknowledging positive mentalizing			To be rated for quality even if specific interventions are lacking 4: Therapist uses judicious praise to identify and explore positive mentalizing	
8. Pretend mode			To be rated for quality even if specific interventions are lacking 4: Therapist identifies pretend mode in the patient and intervenes to try to restore mentalizing	

9. Psychic equivalence			<p>To be rated for quality even if specific interventions are lacking</p> <p>4: Therapist identifies psychic equivalent mode in the patient and intervenes to try to restore mentalizing</p>	
10. Affect focus			<p>4: Interventions are mainly affect focused, not so much on behaviour. Attending to current emotions, grasping affect in the immediacy of the moment, particularly between therapist and patient during session</p>	
11. Affect and interpersonal events			<p>4: Therapist links affects with immediate or recent interpersonal contexts</p>	
12. Stop and rewind			<p>4: Therapist identifies at least one episode when the patient speaks in a rapid and incoherent way on an interpersonal episode, tries to slow down the tempo and goes through the narrative step-by-step together with the patient.</p>	
13. Validation of emotional reactions			<p>4: Therapist expresses a normative view on the appropriateness of the patient's emotional reaction after this has been sufficiently explored and understood</p>	

14. Transference and the relation to the therapist			<p>To be rated for quality even if specific interventions are lacking</p> <p>4: Therapist tries to explore with patient how patient relates to therapist and stimulates reflections on alternative perspectives when appropriate</p>	
15. Use of countertransference			<p>To be rated for quality even if specific interventions are lacking</p> <p>4: Therapist utilizes own affects and thoughts about the relation to patient in an open manner in order to explore relationship</p>	
16. Monitoring own understanding and correcting misunderstanding			<p>4: Therapist displays a general attitude of wanting to find out whether his/her understanding corresponds with that of the patient, lets his/her own understanding be influenced by the patient's views and openly admits to misunderstandings</p>	
17. Integrating experiences from concurrent group therapy			<p>4: Therapist stimulates exploration of the patient's group therapy experiences in the individual therapy sessions and tries to integrate the two treatment components into a coherent whole</p>	

APPENDIX F

NRES Committees - North of Scotland
Summerfield House
2 Eday Road
Aberdeen
AB15 6RE

Telephone: 01224 558458
Facsimile: 01224 558609
Email: nosres@nhs.net



17 April 2014

Dr Jennifer Perrin
Trainee Clinical Psychologist
Child and Family Mental Health Services
Rosehill House
Royal Aberdeen Children's Hospital
Cornhill Road
Aberdeen
AB25 2ZG

Dear Dr Perrin

Full title of project: **A service evaluation of the HUB program a Mentalization Based Therapy for Borderline Personality Disorder (BPD)**

Thank you for seeking the Committee's advice about the above project.

You provided the following documents for consideration:

- Description of the HUB Programme and the process by which the evaluation would take place.

These documents have been considered by the Scientific Officer.

- After review of the document provided, the proposed project is an Audit and would not require approval from the NRES Committees – North of Scotland. However, approval will be required from the Caldicott Guardian to access the required information.

I enclose a copy of our leaflet, "Defining Research", which explains how we differentiate research from other activities. The Scientific Officer has advised that the project is not considered to be research according to this guidance. Therefore it does not require ethical review by a NHS Research Ethics Committee.

You should check with the NHS Grampian what other review arrangements or sources of advice apply to projects of this type. Guidance may be available from the clinical governance office.

You may wish to check whether the project should be reviewed by the ethics committee within your own institution.

This letter should not be interpreted as giving a form of ethical approval or any endorsement of the project, but it may be provided to a journal or other body as evidence that ethical approval is not required under NHS research governance arrangements.

However, if you, your sponsor/funder or any NHS organisation feels that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further.

Where NHS organisations have clarified that a project is not to be managed as research, the Research Governance Framework states that it should not be presented as research within the NHS.

Yours sincerely

A handwritten signature in black ink, appearing to read 'R Venables', written in a cursive style.

**Rachel Venables PhD
Scientific Officer**

Enclosure: NRES leaflet – “Defining Research”

APPENDIX G

NRES Committees - North of Scotland

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2 Eday Road
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6 January 2014

Dr Jennifer Perrin
Department of Clinical and Counselling Psychology
Block A, Clerkseat Building
Royal Cornhill Hospital
ABERDEEN
AB25 2ZH

Dear Dr Perrin

Study title: A pilot evaluation of the HUB program: a mentalization based therapy for Borderline Personality Disorder
REC reference: 13/NS/0158
IRAS project ID: 139224

Thank you for your letter of 19 December 2013. I can confirm the REC has received the documents listed below and that these comply with the approval conditions detailed in our letter dated 13 December 2013.

Documents received

The documents received were as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering Letter		19 December 2013
Participant Information Sheet	2	19 December 2013

Approved documents

The final list of approved documentation for the study is therefore as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering Letter		19 December 2013
Interview Schedules/Topic Guides	1	12 November 2013
Investigator CV: Jennifer Perrin		15 November 2013
Supervisor's CV: Matthias Schwannauer		16 October 2013
Supervisor's CV: Angus MacBeth		04 October 2013
Supervisor's CV: Linda Treliving		26 October 2013

<i>Document</i>	<i>Version</i>	<i>Date</i>
GP Letter	1	12 November 2013
Assessment of Social Adjustment by Patient Self-Report Article		20 November 2013*
The Adult Attachment Projective: Measuring Individual Differences in Attachment Security using Projective Methodology		20 November 2013*
Participant Consent Form	1	12 November 2013
Participant Information Sheet	2	19 December 2013
Protocol	1	12 November 2013
Questionnaire: PRE therapy SCL90 - Problems & Complaints		20 November 2013*
Questionnaire: PDQ-4 - Personality Questionnaire		20 November 2013*
Questionnaire: CTQ		20 November 2013*
Questionnaire: IIP-32 - Question/Scoring Sheet		20 November 2013*
REC application	139224/527 441/1/188	21 November 2013
Referees or other scientific critique report		30 July 2013

* date received

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

13/NS/0158	Please quote this number on all correspondence
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Yours sincerely

Carol Irvine

Mrs Carol Irvine
Ethics Co-ordinator

Copy to: Professor Charlotte Clarke
NHSG R&D Department